DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-002647
Date Inspected: 15-May-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 630
OSM Departure Time: 1730
Location: Shanghai, China

CWI Name:	See below	**CWI Present:**	☑ Yes ☐ No
Inspected CWI report:	☐ Yes ☑ No ☐ N/A	**Rod Oven in Use:**	☑ Yes ☐ No ☐ N/A
Electrode to specification:	☑ Yes ☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes ☐ No ☐ N/A
Qualified Welders:	☑ Yes ☐ No ☐ N/A	**Verified Joint Fit-up:**	☐ Yes ☑ No ☐ N/A
Approved Drawings:	☑ Yes ☐ No ☐ N/A	**Approved WPS:**	☑ Yes ☐ No ☐ N/A
		Delayed / Cancelled:	☐ Yes ☑ No ☐ N/A

Bridge No: 34-0006
Component: OBG/Tower

Summary of Items Observed:

Caltrans Quality Assurance (QA) Inspector Sherri Brannon arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China to periodically monitor welding and Quality Control (QC) functions. While on site the QA Inspector observed and/or discovered the following.

OBG/Tower Sub-Assembly

Bay 7-OBG floor beam panels:
QA Inspector Brannon randomly observed ZPMC qualified welders, tack welding various floor beam web splice connections and floor beam top and bottom diaphragm flange to web utilizing a shielded metal arc welding (SMAW) process with a 4.0mm diameter electrode, filler metal brand E7018, class TL508 or brand E7018, class ThJ506Fe1. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-P-2112 or WPS-B-P-2112-FCM.

Bay 7-OBG - Floor Beam Sub Assembly:
QA Inspector Brannon randomly observed ZPMC qualified welders Mr. Liu Xie ID#066236 and Mr. Hong Shu Li ID#044815 fillet welding various floor beam diaphragm stiffeners to flange and web for FB003-058-061, 062, 070, 069, 078, 077 & 045 and FB003-050-004,060,059, 068, 067, 076 and 075 respectively. Mr. Liu and Mr. Hong was observed welding in the 2F (horizontal) position utilizing a flux corded arc welding (FCAW) process with a 1. 4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic. QA Inspector Brannon observed the ZPMC QC Inspector Mr. Hu Wei Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector Brannon observed preheat and

welding parameters measured by the QC CWI Inspector Mr. Hu Wei Qing to be: a minimum preheat temperature of 20°C and welding parameters amps of 304/307, volts of 30.2/30.2, a travel speed of 439/436 mm/min and a gas flow of 22L respectively. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2132-3.

Bay 7-OBG - Floor Beam Sub Assembly:

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Zhang Liang ID#067036 and Mr. Chen Chuan Zong splice welding floor beam diaphragm splice connections for FB013-006-044 & FB013-006-043. Mr. Zhang and Mr. Chen was observed welding in the 1G (flat) position utilizing a flux corded arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic. QA Inspector Brannon observed the ZPMC QC Inspector Mr. Hu Wei Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector Brannon observed preheat and welding parameters measured by the QC CWI Inspector Mr. Hu Wei Qing to be: a minimum preheat temperature of 110°C and welding parameters amps of 282/276, volts of 29.7/30.3, a travel speed of 524/525 mm/min and a gas flow of 21L. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2231-B-U2-F-1.

Bay 7-OBG – Lower Deck Sub Assembly:

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Li Wen Guo ID#066261 tack welding lower deck connections for LD003-003-011. Mr. Li was observed welding in the 2F (horizontal) position utilizing a shielded metal arc welding (SMAW) process with a 4.0mm diameter electrode, filler metal brand E7018, class TL-508. QA Inspector Brannon observed the ZPMC QC Inspector Mr. Hu Wei Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector Brannon observed preheat and welding parameters measured by the QC CWI Inspector Mr. Hu Wei Qing to be: a minimum preheat temperature of 20°C and welding parameters amps of 163. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-P-2112.

Bay 8 – Tower Diaphragm Sub Assembly:

QA Inspector Brannon randomly observed ZPMC qualified welder Mrs. Ma Ming ID #045270 groove welding fill pass's joining SA169 (N) to P659 (N) weld joint NSD1 SA169-1b. Mrs. Ma was observed welding in the 1G (flat) position utilizing a submerged arc welding (SAW) process with a 4.8mm diameter electrode, filler metal brand EM12K, class JW3 machine. QA Inspector Brannon observed the ZPMC QC CWI Inspector Lv Li Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector Brannon observed preheat and welding parameters measured by the QC CWI Inspector Lv Li Qing to be: preheat temperature of 180°C and welding parameters amps of 617, volts of 30.3, and a travel speed of 478 mm/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-3221-B-U3c-S.

Bay 8 – Heat straightening:

QA Inspector Brannon randomly observed ZPMC personnel performing heat straightening on various tower diaphragm flange plates and tower stiffener plates. Cause for heat straightening mill induced distortion. Heat Straightening is performed by flame straightening using natural gas with a hand torch.

Bay 8 – Tower Diaphragm Flange Sub Assembly:

Welding for the tower diaphragm flange for SSD1-SA326 and ESD1 SA226 was idle on this date..

Bay 8 – Tower Diaphragm Sub Assembly
ZPMC NDT (UT):
QA Inspector Brannon randomly observed ZPMC Ultrasonic Testing Technician Mr. Xue Hai Rong performing lamination scan with 2.5mhz transducer and performing shear wave using a 45° and 70° transducer on the following tower diaphragm splice welds: NSD1 SA311 A/B 1B/2B (accept) and WSD1 SA290 11A/12A. QA Inspector Brannon observed accept marked on the tower diaphragm plates.

The following digital photograph below illustrates observation of the activities being performed.

Summary of Conversations:
No relevant conversations to report.
Comments
This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Brannon,Sherri	Quality Assurance Inspector
Reviewed By:	Carreon,Albert	QA Reviewer